

Question Paper for written test/ Suitability test in connection with appointment to the post of JE on Compassionate ground.

Full Mark: 150

Time: 120 Minuets

A. General Awareness

20 Marks

(Each question carries 1 marks)

(1X20)

1. The hardest substance available on earth is
A. Gold B. Platinum ☒ C. Diamond D. Iron
2. Dronacharya Award is given to ... ?
A. Players ☒ B. Coaches C. Umpires D. Sports Editors
3. India changed over to decimal system of coinage in the year ?
A. April 1995, B. April 1956 C. April 1957 ☒ D. April 1958
4. "OS" in computer abbreviation usually means ?
A. Order of Signature B. Open Software ☒ C. Operating System D. Optical Sensor
5. Salal Project is on the river?
A. Chenab ☒ B. Jhelum C. Ravi D. Sutlej
6. The world Environment day is celebrated on ?
A. May 31, B. October 4 ☒ C. December 10 D. June 5
7. Which of the following festival is celebrated on Prophet Mohammad's Birthday ?
A. Id-UI-Juha, B. Id-e-Milad ☒ C. Id-UI-Fitar ☒ D. Muharram
8. The Gas usually filled in the electric bulb is
☒ A. Nitrogen B. Hydrogen C. Carbon dioxide D. oxygen
9. The great Victoria Desert is located in
A. Canada, B. West Africa ☒ C. Australia D. Asia
10. Who wrote the famous book " The Discovery of India"
A. Mahatma Gandhi, ☒ B. Leo Tolstoy, C. Jawaharlal Nehru, ☒ D. Sarat Chandra Chatterjee
11. What is the Currency of Bhutan ?
A. Dollar, B. Pound ☒ C. Ngultrum, D. Lira
12. Vijayawada is located in the bank of river ?
A. Ganga, ☒ B. Godavari C. Tapti D. Narmada
13. Indian Space Research Institute (ISRO) is located at ?
☒ A. Bengaluru, B. Ahmedabad C. Hyderabad D. Mumbai
14. Bishnupada temple is located at
A. Varanasi, ☒ B. Nalanda, C. Gaya, D. Rajgir.
15. Who directed the film "Slumdog Millionaire"
A. Anil Kapoor, B. Prakash Jha, ☒ C. Donny Boyle D. Simon Buotoy.
16. There are ring among which of the planets?
A. Uranus B. Mars ☒ C. Jupiter D. Saturn
17. Identify the Indian city mostly affected by cyclone " Hud-Hud"
A. Chennai, ☒ B. Visakhapatnam, C. Kolkata D. Hyderabad.
18. How many Railway Zones are presently in function in Indian Railways.
A. 4, B. 9 ☒ C. 17 D. 19
19. The Head Quarter of West Central Railway is ?
☒ A. Jabalpur, B. Jaipur, C. Jodhpur, D. Jaisalmer
20. Jama Masjid of New Delhi was built by ?
A. Akbar, B. Jahangir, C. Shah Jahan ☒ D. Aurangzeb.

B. General Intelligence & Reasoning 20 Marks (1X20)

1. If Pincode of MADRAS is 423829, What is the Pincode of RAMDAS ?
A. 314516, ☒ B. 824329, C. 764321 D. 12345
2. Player: Team :: Minister: ?
A. Army, B. Troupe ☒ C. Council, D. Crowd.

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$$15 \times 9 + 10 - 5$$

$$135 + 10 - 5$$

3. Q4. If PLUTO = QKVSP, then SATURN =
(a). TZUTSM, (b). TATUTM, (c). TZUTRO, (d) ☒ RZUTSO
4. If '+' means $\times$, '-' means $\div$, ' $\times$ ' means + and ' $\div$ ' means -; compute the value of the expression $15 + 9 \times 10 \div 5$
☒ A. 140 B. 190 C. 145 D. 130
5. A man is facing east. He turns 60 degrees in the anticlockwise direction and then again turns another 120 degrees in the same direction. Which direction is he facing now?
A. East B. North-west C. South-east ☒ D. West
6. Introducing a woman, Anjali says, "She is the wife of my daughter's only brother". How is the woman related to Anjali?
A. Niece, ☒ B. Daughter-in-law, C. Sister, D. Cousin
7. Complete the series 2, 5, 9, 19, 37, ?
A. 73, ☒ B. 75, C. 76, D. 78
8. $1/2, 3/4, 5/8, 7/16, ?$
☒ A. $9/32$, B. $10/17$ C. $11/34$, D. $12/35$
9. B, D, F, I, L, P, ?
(a). R (b). S ☒ (c). T (d). U
10. 1, 9, 25, 49, ?, 121
☒ (a) 64 (b) 81 (c) 91 (d) 100
11. X is mightier than Y and Y is mightier than Z, P is mightier than Q but inferior to Y.. Q is mightier than Z, who is weakest among all.
(a) X ☒ (b) Z (c) Q (d) P
12. Find the missing term in the series: 4, 7, 12, ____, 28, 39.
(a) 17, (b) 18 (c) 21 ☒ (d) 19
13. Find the missing term 1, 4, 27, 16, ____, 36, 343.
(a) 25 (b) 216 ☒ (c) 64 (d) 125
14. In certain Code Language HAND is written as SZMW, then what will be the code of MILK ?
(a) ORNP, (b) PNRO, ☒ (c) NROP, (d) RNOP
15. A circular homemade bread (Roti) is what type of solid ?
☒ (a) Circle, (b) Prism ☒ (c) Cylinder (d) Cube
16. Find the missing term in the series..
BZA, DYC, FXE, ____, JVL
☒ (a) HWG, (b) HUG, (c) WHG, (d) GUH
17. Find out the term which is different from other terms in the following:- 22, 33, 66, 99, 121, 279, 594
(a) 99 (b) 121 ☒ (c) 279 (d) 594
18. 1st January of 2019 was Tuesday, 29th December of 2019 will be _____.
(a) Thursday, ☒ (b) Monday, (c) Friday, (d) Sunday
19. The Indian Standard Time (IST) is ahead by ____ Hours from Greenwich Mean Time (GMT) ?
(a) 6.00 Hrs, (b) 5.00 Hrs, ☒ (c) 5 Hrs 30 Min, (d) 6 Hrs 30 Min.
20. Who told, the earth is still and the sun is revolving around it ?
(a) Copernicus, ☒ (b) Galileo, (c) Newton, (d) Armstrong

C. Arithmetic (2X10=20) (the calculation must be there in the copy.)
(1 mark for answer and 1 mark for calculation)

1. The difference of two positive numbers is 10. 2 and 48 are the HCF and LCM of those two numbers. Which is the smaller one?
a) 12, b) 16, ☒ c) 6, d) 8.
2. 29% of 6500 is what percentage of 2500?
☒ a) 75.4%, b) 76.5%, c) 80.4%, d) 72.5%.
3. $32/3 + 46/9 - 14/3 = ?$
a) $100/9$, b) 10, c) 11, ☒ d) $103/9$.
4. 75% of a number from which 10 has been deducted is 180.
The number is? a) 200, b) 240, c) 330, ☒ d) 250.
5. What is $6 \times 0 \times 5$
(a) 30, (b) 11, (c) 25, ☒ (d) 0, (e) 27.

$$11 \overline{) 2791} \begin{array}{r} 253 \\ \underline{275} \\ 41 \end{array}$$

$$7 \overline{) 363} \begin{array}{r} 51 \\ \underline{35} \\ 13 \end{array}$$

$$11 \overline{) 594} \begin{array}{r} 54 \\ \underline{55} \\ 44 \end{array}$$

$$11 \overline{) 16191} \begin{array}{r} 1471 \\ \underline{154} \\ 691 \\ \underline{66} \\ 31 \end{array}$$

numbers, which is the smaller one

6. A can complete a work in 10 days, B can complete the same work in 12 days. If A & B start the work in same time, how long they will take to complete the work.
7. Three Taps A, B & C are connected to a Tank. A can fill the tank in 2 hours. B alone can fill the tank in 5 hours. C can vacant the in 3 hours. If A, B & C are on simultaneously, After how many time the tank became full.
8. There would be 10% loss if a toy is sold at Rs 10.80 per piece. At what price should it be sold to earn a profit of 20% ?
A) Rs 12, B) 12.96, C) None of these, D) 14.40.
9. A sum of money trebles itself in 15 years 6 months. In how many years would it double itself?
(a) 9 years 6 months, (B) 8 years 3 months, (C) 7 years 9 months, (D) 6 years 3 months
10. A and B are two alloys of gold and copper prepared by mixing metals in the ratio 7 : 2 and 7 : 11 respectively. If equal quantities of the alloys are melted to form a third alloy C, the ratio of gold and copper in C will be:?
(A) 9:5, (B) 5:9, (C) 5:7, (D) 7:5

D. Technical Knowledge

Total Marks=90

Part: "X" Descriptive type (All questions carries 3 mark X 9=27 each)

1. In an electrical circuit, four conductors are meeting at a point Node. Conductor A carries 10 amp current towards the node. Conductor B carries 5 amp away from the Node. Conductor C carries 3 amp current towards the Node. Find the amount and direction of current in conductor D. Which famous Law shall it govern?
2. Three car batteries of 12V are connected in series, positive of one is connected with negative of others. What is the terminal voltage of the combination. How can you measure the terminal voltage ?
(a) Ameter, (b) Volt Meter, (c) Watt Meter, (d) Ohm- Meter
3. A PN junction diode (Silicon) is connected with a resistance of 45 k- Ω in series and a battery of 6V in forward bias condition. Calculate the current in the series circuit, considering forward voltage drop in the diode is 0.7 volt.
4. What do you mean by Zener Diode? What is its application in Electronic circuit? Write a short note on Zener Diode.
5. Cuttack Radio station (Akashbani) transmits radio signal at 972 kHz. In which _____ Meter (Band) the AM signal is available in Radio.
(Velocity of electromagnetic wave is 3×10^8)
6. How a Transformer works? How it converts one voltage level to another? The Primary and Secondary windings are connected electrically or magnetically? What is Turn Ratio ?
7. In a DC Generator, How it is different from a DC Motor ? Which energy is converted in a DC Generator to which energy form?
8. Draw an n-p-n Transistor amplifier circuit in common emitter configuration with $V_{cc} = 6$ Volt, with Biasing Voltage by resistive divider network $R_{cb} = 45 \text{ M-}\Omega$ and $R_{be} = 75 \text{ M-}\Omega$.
9. Draw the circuit of a DC Power Supply arrangement including Transformer(230:12), Bridge Rectifier, Pie-Filter, Bleeder Resistance etc for a 9VOLT Load.

Part: "Y" Objective Type(Technical) Total Marks 63 . (1X63)

1. The speed of sound is approximately equal to
✓ 3×10^8 m/s, 2) 330 m/s, 3) 5000 m/s, 4) 1500 m/s
2. Hot wire Instrument read :
1) Peak Value, 2) Average Value, 3) r.m.s Value, 4) None of these
3. Made from variety of materials, such as carbon, which inhibits the flow of current ...?
1) Choke 2) Inductor, 3) Resistor, 4) Capacitor
4. Sometimes computers and cache registers in a food mart are connected to a UPS system. What does UPS means?
1) United Parcel Service, 2.) Uniform Product Support, 3) Under Paneling Storage, 4) Uninterrupted Power Supply
5. The most common format of a home video recorder is VHS. VHS stands for ...?
1) Video Home System, 2) Very High Speed, 3) Video Horizontal Standard, 4) Voltage House Standard
6. The purpose of Choke in a tube light is ?
1) To decrease the current, 2) To increase the current, 3) To decrease the voltage momentarily, 4) To increase the voltage momentarily
7. Modern TV draws power even if turned off. In the circuit, the power is used to perform which Function?
1) Sound, 2) Remote Control, 3) Colour Balance, 4) High Voltage.

8. What do we call a collection of two or more computers that are located within a limited distance of each other, and are connected,
1) Internet, 2) Intranet, 3) Local Area Network, 4) Wide Area Net work
9. What is part of a database that holds only one type of information?
1) Report, 2) Field, 3. Record, 4) File.
10. Grand Central Terminal, Park Avenue New York is world's
1) Largest Railway station, 2) Highest Railway Station, 3) Longest Railway Station, 4) None of the above.
11. Which of the following memories used one transistor and one capacitor as basic memory unit?
1) SRAM, 2) DRAM, 3) Both SRAM & DRAM, 4) None.
12. Which number system has a base of 16
1) Decimal, 2) Octal, 3) Hexa Decimal, 4) Binary.
13. How many entries will be in the truth table of a 3input NAND gate.
1) 3, 2) 6, 3) 8, 4) 9.
14. Temperature Variation is a/an ?
1) Digital quantity, 2) Analog Quantity, 3) Either Digital or analog, 4) None.
15. One Killo Bit equal to
1) 1000 bit, 2) 1024 bit, 3) 1012 bit, 4) 1008 bit .
16. In digital system one Byte is equal to _____ bit ?
a) 1, b) 2, c) 4, d) 8.
17. Boolean Algebra is also known as
1) Gate Algebra, 2) Transistor Algebra, 3) Switching Algebra, 4) Counting Algebra.
18. The resistivity of a conductor depends upon
1) Area of the conductor, 2) length of the conductor, 3) type of material, 4) none of these.
19. The resistance of a conductor of diameter D and length L is R ohm, If the diameter of the conductor is halved and its length is doubled, the resistance will be ?
1) $R \Omega$, 2) $2R \Omega$, 3) $4R \Omega$, 4) $8R \Omega$.
20. How many coulombs of charge flow through a circuit carrying a current of 10 Amp in 1 Minuit?
1) 10, 2) 60, 3) 600, 4) 1200.
21. A capacitor carries a charge of 0.1C at 5V. Its capacitance is?
1) 0.02 F, 2) 0.5 F, 3) 0.05 F, 4) 0.2 F
22. Four Capacitors each 40 micro Farad are connected in parallel, the equivalent capacitance of the system is ?
1) 160 micro farad, 2) 10 micro farad, 3) 40 micro farad, 4) 5 micro farad.
23. The unit of Resistivity is ?
1) Ohm, 2) Ohm- meter, 3) Ohm/Meter, 4) Ohm/Meter Squire.
24. Which of the following quantities consists of S.I. unit as Hertz
1) Charge, 2) Force, 3) Frequency, 4) Power.
25. The Metric System is also called as ?
1) CGS, 2) MKS System, 3) SI, 4) None of these.
26. _____ was the first city in India to adopt Electric Traction ?
1) Delhi, 2) Madras(Chennai), 3) Calcutta(Kolkata), 4) Bombay(Mumbai)
27. Why diamond is very hard ?
1. Because of large cohesive energy, 2) Because of covalent bond, 3) because of high melting point, 4) none of the above.
28. Which of the following is the example of piezo-electric material ?
1) Lead zirconate titanate, 2) Copper, 3) Potassium niobate, 4) None of the above
29. Which of the following represents Ohms law ?
1) $V=RI$, 2) $J=\sigma E$, 3) GV , 4) All of the above
30. What is colour code of 220 Ohm with 5% Resistor
1. Red, Red, Brown, Gold
2. Orange, Orange, Black, Gold
3. Red, Red, Black, Gold
4. Red, Red, Brown, Silver
31. If 60 J of energy are available for every 15 C of charge, then what is the voltage ?
1) 4V, 2) 60V, 3) 15V, 4) 0.25V.

32. An Atom's Atomic number is determined by the number of?
 - 1) Neutron-proton, 2) protons, 3) electrons, 4) neutrons
33. A resistive component is designed to be temperature sensitive is ...?
 - 1) Thermistor, 2) Rheostat, 3) Potentiometer, 4) Photoconductive cell
34. Primary Batteries unlike Secondary batteries may be... ?
 - 1) Charged once, 2) Used once, 3) Recharged over & over, 4) stored indefinitely
35. A capacitor is charged by a constant current of 2mA and result in a voltage increase of 12V in a 10sec interval. The value of Capacitance is
 - 1) 0.75mF, 2) 1.33mF, 3) 0.6 mF, 4) 1.67mF.
36. A cordless telephone using separate frequencies for transmission in base and portable unit is known as
 1. Duplex arrangement, 2) half duplex arrangement, 3) either 1 or 2, 4) neither 1 nor 2.
37. For attenuation of high frequencies, we should use
 - 1) Shunt capacitance, 2) series capacitance, 3) inductance, 4) resistance.
38. A modem is classified as low speed if data rate handled is
 - 1) Up to 100 bps, 2) up to 250 bps, 3) up to 400 bps, 4) up to 600 bps.
39. VSB (Vestigial Side Band) Modulation is preferred in TV because,
 1. It reduces the bandwidth requirement
 2. It avoids phase distortion at low frequencies
 3. It results better reception,
 4. None of the above.
40. In FM signal, with a modulation index m_f is passed through a frequency tripler, The wave in the output of the tripler will have a modulation index of ...?
 - 1) m_f , 2) $3m_f$, 3) $m_f/3$, 4) $m_f/9$
41. What kV rating is required for a transformer that must handle a maximum load current of 8A with a secondary voltage of 2kV ?
 - 1) 4 kVA, 2) 0.25 kVA, 3) 16 kVA, 4) 8kVA.
42. When the turn ratio of a transformer is 20, and the primary AC voltage is 12V, then the secondary AC voltage is ?
 - 1) 12V, 2) 120V, 3) 240V, 4) 2,400V.
43. A series circuit consists of 3 resistors with values of 120 Ω , 270 Ω and 330 Ω . The total resistance of the series is... ?
 - 1) Less than 120 Ω , 2) the average of the values, 3) 720 Ω , 4) 120 Ω .
44. If the RMS voltage drop across 15k- Ω resistor is 16V, the peak current through the resistor is ...?
 - 1) 15mA, 2) 1.5mA, 3) 10mA, 4) 1mA.
45. How many degrees are there in $\pi/3$ radian ? ($\pi = \text{Pi}$)
 - 1) 6 deg, 2) 60 deg, 3) 130 deg, 4) 27 deg
46. Material with lots of free electron are called ?
 - 1) Conductor, 2) insulator, 3) semiconductor, 4) filters.
47. Which of the following is not a type of energy source ?
 - 1) Generator, 2) rheostat, 3) solar cell, 4) battery.
48. When placed close to each other, two positively charged material will
 - 1) Attract, 2) become neutral, 3) become negative, 4) repel.
49. A multimeter measures ?
 - 1) Current, 2) Voltage, 3) resistance, 4) Current, Voltage & Resistance
50. Three coils 2 mH, 3.3mH and 0.2 mH are connected in series, The total inductance is ?
 - 1) 55mH, 2) less than 0.2mH, 3) Less than 5.5 mH, 4) 5.5mH
51. In 0.025 Watt, there are
 - 1) 25kWatt, 2) 0.00025kW, 3) 2500 micro watt, 4) 25mWatt
52. A given power supply is capable of providing 6A for 3.5 hour, its ampere-hour rating is ?
 - 1) 0.58 Ah, 2) 2.1 Ah, 3) 21 Ah, 4) 58Ah
53. In a three phase power system, the voltages are separated by phase angle ?
 - 1) 45 deg, 2) 90 deg, 3) 120 deg, 4) 180 deg
54. Which of the following is not an electrical quantity ?
 - 1) Voltage, 2) Current, 3) distance, 4) Power
55. If the resultant of two equal forces has the same magnitude as either of the force, then the angle between the two forces is ?
 - 1) 30 deg, 2) 60 deg, 3) 90 deg, 4) 120 deg
56. Which of the following insulation is used in cables ?
 - 1) Varnished cambric, 2) Rubber, 3) Paper, 4) any of the above

57. A motor converts _____ energy to _____ energy ?
1. Mechanical to Electrical
 2. Electrical to Mechanical
 3. Solar to Wind
 4. Mechanical to Solar
58. Which of the following gate is a two level logic gate ?
- 1) OR Gate, 2) NAND Gate, 3) Exclusive OR gate, 4) Not Gate
59. The binary number 10101 is equivalent to decimal no _____
- 1) 19, 2) 12, 3) 27, 4) 21
60. The Gate generally called as a Inverter is?
- 1) OR gate, 2) And Gate, 3) Not Gate, 4) Ex-OR Gate
61. An SCR has _____ PN Junction ?
- 1) Two, 2) Three, 3) Four, 4) None of the above
62. SCR behaves as a _____ Switch. ?
- 1) Unidirectional, 2) Bidirectional, 3) Mechanical, 4) None of the above.
63. Earth wire or Ground wire is made of ?
- 1) Copper, 2) Aluminum, 3) Iron, 4) Galvanized Steel.

*****XXXXX*****